

REMARKS

This is in response to the Final Office Action dated May 5, 2006.

In the Office Action, claims 1-30 and 32-46 are noted as pending in the application, claims 1-30 and 32-46 stand rejected, no claims are objected to and no claims are allowed. Claims 31 and 47-56 are canceled. No claims have been withdrawn from consideration.

Claims 1-30 and 32-46 remain pending in the application. No claims are canceled by this amendment, and no new claims are added. No claims have been withdrawn from consideration. Reconsideration of the Application in view of the foregoing amendments and following remarks is respectfully requested.

Applicants' Disclosure

Applicants' disclosure has been discussed previously. The discussion in Applicants' 13 February 2006 response will not be repeated, but it is noted that the Examiner recognizes and understands Applicants' fin assembly. The fin assembly has been discussed previously in the context of primary and secondary fins, that the secondary fin 9 is smaller than the primary fin 6, and that the primary fin is forward of the secondary fin. The benefits of this construction are demonstrated in Applicants' specification and in the 13 February 2006 response.

However, it is noted here that the larger fin extends at an angle to the craft to which it is attached and the larger fin has an acute angle side and a side opposite the acute angle side (an obtuse side). The smaller fin is positioned on the acute angle side of the larger fin. It is also noted that one example of the larger fin may be considered to have a convex side and a concave side, and in the disclosure, the smaller fin is on the concave side of the larger fin. In another aspect, the larger and smaller fins in one example may be considered to be arranged in such a way that the assembly has a rake, and that rake can have an angle of less than about 90 degrees. The concept of a rake in the context of the fin assembly is discussed in the Applicants' specification at page 15, lines 10-21.

The Rejection

The Office Action is made Final. In the Office Action the claims are rejected as being allegedly anticipated only by the *Weberling* patent, AU9170912. No other references are relied upon by the Examiner to reject the claims. In order to anticipate the claims, a reference must squarely meet each and every limitation of each claim being rejected. However, to support some of the rejections, the Examiner makes statements not found in the reference, thereby failing to make a proper rejection of anticipation. For example, in the Examiner's Scenario 1, the Examiner points to nothing in *Weberling* supporting the Examiner's argument. In fact, the Examiner is merely proposing a speculative possibility not expressed in or suggested by *Weberling*. Moreover, the structure shown in *Weberling* does not appear to be reversible as the Examiner speculates, but appears to have a directionality precluding reversal. The Examiner should take note of the mounting elements in *Weberling*. Therefore, *Weberling* cannot anticipate based on the Examiner's speculation presented in Scenario 1. In another example, the Examiner referring to claim 22 states "if the fin is tilted 90 degrees clockwise". Once again, the Examiner fails to find any support in the reference for such speculation, thereby precluding any anticipation.

Additionally, the Examiner's Scenario 2 is also conjecture and speculation unsupported by any evidence in the record. However, in an attempt to eliminate any doubt about how *Weberling* might be interpreted, the claims are amended to focus on the relationship between the larger and smaller fins or between the primary and secondary fins, or rake of the assembly, regardless of how a fin assembly might be mounted or used.

Cited Reference *Weberling*

Weberling discloses a fin assembly 10 having an auxiliary fin 16. The fin extends at an angle from the mounting portion 15 to the edge member 12 opposite the web member 13A. That angle is not a right angle and is not 90 degrees to the mounting portion 15. Consequently, the angle has an acute portion and an obtuse portion. The

phrase "FIG. 1" in the drawing is on the acute angle side of the fin, to the right in the drawing, and the auxiliary fin 16 is not on the acute angle side of the fin, to the right in the drawing. Instead, the auxiliary fin 16 is on the side of the primary fin opposite the acute angle, and is on the obtuse angle side of the fin, to the left in the drawing.

It is also noted that the *Weberling* fin has a convex left side, as seen in the drawing, and a concave right side, as seen in the drawing. The auxiliary fin 16 is next to the convex side of the fin, and opposite the concave side of the fin. There is no fin shown or suggested in *Weberling* that is adjacent or next to the concave side of the fin.

The Claims

Consider now the claims in the application. None of the cited references teach or suggest the claimed combinations. For example, claim 1 is an independent apparatus claim reciting in part:

"a larger fin extending from the base, the larger fin extending at an angle to the first direction and having an acute angle portion such that the larger fin has an acute angle side and a second side opposite the acute angle side; and

"a smaller fin extending from the base and positioned on the base relative to the larger fin adjacent the acute angle side and substantially opposite the second."

None of the cited references taken singly or in combination teach or suggest the claimed combination, the recited elements quoted above, or "a smaller fin extending from the base and positioned on the base relative to the larger fin adjacent the acute angle side and substantially opposite the second." The smaller fin being on the acute angle side of the larger fin results in greater drive and stability, in a manner not achieved with two fins oriented with the smaller fin opposite the acute angle side of the larger fin, without sacrificing maneuverability. *Weberling* has the auxiliary fin opposite any acute angle side of the primary fin. Clearly claim 1 is patentable over the cited references.

Claims 2-11 are dependent directly or indirectly from independent claim 1 and

are asserted as being patentable for the same reasons as discussed above with respect to claim 1, for the additional combinations in the dependent claims as well as for the additional limitations recited in the dependent in claims.

Claim 12 is an independent apparatus claim reciting in part:

“a larger fin extending from the base and having a convex primary edge and a concave primary edge; and

“a smaller fin extending rearwardly from the base and having a leading secondary edge and a trailing secondary edge, wherein the smaller fin is on the concave primary edge side of the larger fin.”

None of the cited references taken singly or in combination teach or suggest the claimed combination, the recited elements quoted above, or “a smaller fin extending rearwardly from the base and having a leading secondary edge and a trailing secondary edge, wherein the smaller fin is on the concave primary edge side of the larger fin.”

Nothing in *Weberling* teaches or suggests a smaller fin on a concave primary edge side of a larger fin.

Claim 13 is dependent directly from independent claim 12 and is asserted as being patentable for the same reasons as discussed above with respect to claim 12, for the additional combinations in the dependent claim as well as for the additional limitations recited in the dependent in claim.

Claim 14 is an independent apparatus claim reciting in part:

“a larger fin extending from the base and having a convex primary edge and a concave primary edge and a high rake; and

“a smaller fin extending rearwardly from the base and having a first secondary edge and a second secondary edge, the smaller fin being adjacent the concave primary edge of the larger fin and providing the assembly with a rake of less than about 90°; and

“a feathered portion between the larger fin, the smaller fin and the base.”

None of the cited references taken singly or in combination teach or suggest the claimed combination, the recited elements quoted above, or “a smaller fin extending

rearwardly from the base and having a first secondary edge and a second secondary edge, the smaller fin being adjacent the concave primary edge of the larger fin and providing the assembly with a rake of less than about 90°." Nothing in *Weberling* shows a smaller fin being adjacent a concave primary edge of a larger fin and an assembly with a rake of less than 90 degrees, or a feathered portion between the larger fin, the smaller fin and the base as claimed.

Claims 15-16 are dependent directly or indirectly from independent claim 14 and are asserted as being patentable for the same reasons as discussed above with respect to claim 14, for the additional combinations in the dependent claims as well as for the additional limitations recited in the dependent in claims.

Claim 17 is an independent apparatus claim reciting in part:

"a primary fin that extends from the base and which has a first edge and a second edge that meet at a primary tip, where the edges lie substantially within a common plane; and

"a secondary fin extending from the base, away from the primary fin, and wherein the secondary fin, having an edge that has a tangent that is parallel to the plane and the primary fin extends such that the secondary fin is positioned between a portion of the primary fin and the base for providing the assembly with a rake of less than about 90°."

None of the cited references taken singly or in combination teach or suggest the claimed combination, the recited elements quoted above, or "a secondary fin extending from the base, away from the primary fin, and wherein the secondary fin, having an edge that has a tangent that is parallel to the plane and the primary fin extends such that the secondary fin is positioned between a portion of the primary fin and the base for providing the assembly with a rake of less than about 90°." Nothing in *Weberling* has a primary fin extending such that a secondary fin is positioned between a portion of the primary fin and the base for providing an assembly with a rake of less than 90 degrees.

Claim 18 is an independent apparatus claim reciting in part:

"a primary fin that extends from the base at an acute angle and which has a leading edge away from the acute angle and a trailing edge

adjacent the acute angle that meet at a primary tip; and

"a secondary fin extending from the base, the secondary fin, having an edge that has a tangent that is parallel to the surface wherein the primary fin extends relative to the secondary fin such that the assembly has a rake of less than about 90°."

None of the cited references taken singly or in combination teach or suggest the claimed combination, the recited elements quoted above, or "a secondary fin extending from the base, the secondary fin, having an edge that has a tangent that is parallel to the surface wherein the primary fin extends relative to the secondary fin such that the assembly has a rake of less than about 90°." Nothing in *Weberling* shows a primary fin and a secondary fin wherein the primary fin extends relative to the secondary fin such that the assembly has a rake of less than about 90 degrees.

Claims 19-34 are dependent directly or indirectly from independent claim 18 and are asserted as being patentable for the same reasons as discussed above with respect to claim 18, for the additional combinations in the dependent claims as well as for the additional limitations recited in the dependent in claims. Note claim 24 reciting in part "wherein the trailing edge is feathered in an area intermediate of the secondary fin and the leading edge." Note also claim 25 reciting in part "wherein the trailing edge and the secondary fin are joined by an intermediate arcuate edge defined by the base." Claim 26 recites in part "wherein the arcuate edge is of varying radius." Claim 29 recites "wherein one or both of the faces are substantially planar."

Claim 35 is an independent apparatus claim reciting in part:

"a large fin extending from the base in a direction at an acute angle relative to the base;

"a smaller fin extending from the base in the acute angle defined by the large fin and the base, the smaller fin trailing the large fin and the large fin extending relative to the smaller fin such that the assembly has a rake of less than 90°, wherein the base, the large fin and the smaller fin include a combined total sectional area (A_t); and

"a feathered portion between two or more of the large fin, the

smaller fin and the base, wherein the feathered portion includes a sectional area (A_p) and $A_p > 0.2.A_L$."

None of the cited references taken singly or in combination teach or suggest the claimed combination, the recited elements quoted above, or "a smaller fin extending from the base in the acute angle defined by the large fin and the base, the smaller fin trailing the large fin and the large fin extending relative to the smaller fin such that the assembly has a rake of less than 90° , wherein the base, the large fin and the smaller fin include a combined total sectional area (A_L)" or "a feathered portion between two or more of the large fin, the smaller fin and the base, wherein the feathered portion includes a sectional area (A_p) and $A_p > 0.2.A_L$." Nothing in *Weberling* shows a smaller fin trailing the large fin and the large fin extending relative to the smaller fin such that the assembly has a rake of less than 90 degrees.

Claim 36 is dependent directly or indirectly from independent claims 1, 17 or 18, and is asserted as being patentable for the same reasons as discussed above with respect to those claims, for the additional combinations in the dependent claim as well as for the additional limitations recited in the dependent in claim. Claim 37 is dependent directly or indirectly from independent claims 12, 14 or 35, and is asserted as being patentable for the same reasons as discussed above with respect to those claims, for the additional combinations in the dependent claim as well as for the additional limitations recited in the dependent in claim.

Claim 38 is an independent method claim reciting in part:

"forming a larger fin that extends from the base at an acute angle relative to the base and which has a leading primary edge and a trailing primary edge; and

"forming a smaller fin that extends from the base such that the smaller fin is in the acute angle of between the larger fin and the base and which has a leading secondary edge and a trailing secondary edge, such that the larger fin extends relative to the smaller fin such that the assembly has a rake of less than 90° ."

None of the cited references taken singly or in combination teach or suggest the

claimed combination, the recited elements quoted above, or forming a smaller fin that extends from the base such that the smaller fin is in the acute angle of between the larger fin and the base and which has a leading secondary edge and a trailing secondary edge, such that the larger fin extends relative to the smaller fin such that the assembly has a rake of less than 90°.” Nothing in *Weberling* shows forming a smaller fin that extends from the base such that the smaller fin is in the acute angle of between the larger fin and the base, or a larger fin that extends relative to the smaller fin such that the assembly has a rake of less than 90 degrees.

The claims 39-41 are dependent directly or indirectly from independent claim 38 and are asserted as being patentable for the same reasons as discussed above with respect to claim 38, for the additional combinations in the dependent claims as well as for the additional limitations recited in the dependent in claims.

Claim 42 is an independent apparatus claim reciting in part:

“a larger fin extending from the base at an acute angle relative to the base; and

“a smaller fin extending from the base in the acute angle between the larger fin and the base, the smaller fin trailing the larger fin and the larger fin extending rearwardly of the smaller fin for providing the assembly with a rake of less than 90°, wherein a high proportion of A is near the surface.”

None of the cited references taken singly or in combination teach or suggest the claimed combination, the recited elements quoted above, or “a smaller fin extending from the base in the acute angle between the larger fin and the base, the smaller fin trailing the larger fin and the larger fin extending rearwardly of the smaller fin for providing the assembly with a rake of less than 90°, wherein a high proportion of A is near the surface.” Nothing in *Weberling* shows a smaller fin extending from the base in the acute angle between the larger fin and the base, or the larger fin extending rearwardly of the smaller fin for providing the assembly with a rake of less than 90 degrees.

Claims 43-46 are dependent directly or indirectly from independent claim 42 and

are asserted as being patentable for the same reasons as discussed above with respect to claim 42, for the additional combinations in the dependent claims as well as for the additional limitations recited in the dependent in claims.

Reconsideration of the application and claims in view of the foregoing amendments and remarks is respectfully requested. Early notice of allowance thereof is earnestly solicited.

If the Examiner does not believe the foregoing amendments place the application in a condition for allowance, Applicants respectfully request the courtesy of a telephone interview to discuss the claims.

This response is being filed with a Petition for A One-Month Extension of Time.

Please charge any additional fees that may be due or credit any overpayments to our deposit Account No. 50-0655. If a petition is required in conjunction with this paper, please consider this a request for such a petition.

Respectfully submitted,

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